

# EXHIBIT 4

# Privacy Sandbox blog

Latest news, posts, and updates.



## Storage Partitioning deprecation trial renewal

(<https://developers.google.com/privacy-sandbox/blog/storage-partitioning-deprecation-trial-renewal?hl=en>)

For sites that need time to adjust to third-party partitioning of storage, service...

Privacy Sandbox



## Privacy Sandbox at Google I/O 2024

(<https://developers.google.com/privacy-sandbox/blog/google-io-2024?hl=en>)

The Privacy Sandbox team was at Google I/O 2024 to share the latest news on third...

Privacy Sandbox



## Validating the security of the Aggregation Service

(<https://developers.google.com/privacy-sandbox/blog/validate-aggregation-service-security?hl=en>)

Sharing updates on the Aggregation Service coordinators, and results of an...

Privacy Sandbox

<p>Mike Taylor May 25, 2024</p> <p><b>Privacy Sandbox developers</b></p> <p><u><a href="https://developers.google.com/privacy-sandbox/blog/grace-period-extension?hl=en">Chrome's third-party cookie deprecation trials: grace period extended</a></u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/grace-period-extension?hl=en">https://developers.google.com/privacy-sandbox/blog/grace-period-extension?hl=en</a>)</p> <p>The grace period for Chrome's third-party cookie deprecation trials is being...</p> <p>Privacy Sandbox</p>	<p>Sam Dutton May 22, 2024</p> <p><b>Privacy Sandbox developers</b></p> <p><u><a href="https://developers.google.com/privacy-sandbox/blog/iab-tech-lab-response?hl=en">Privacy response to IAB Tech Lab's Fit Gap Analysis for Digital Advertising</a></u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/iab-tech-lab-response?hl=en">https://developers.google.com/privacy-sandbox/blog/iab-tech-lab-response?hl=en</a>)</p> <p>We're responding because we believe that it's important to listen to what IAB...</p> <p>Privacy Sandbox</p>	<p>Renan Feldman April 16, 2024</p> <p><b>Privacy Sandbox developers</b></p> <p><u><a href="https://developers.google.com/privacy-sandbox/blog/office-hours-private-state-tokens?hl=en">Join the Privacy Sandbox Office Hours: Private State Tokens</a></u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/office-hours-private-state-tokens?hl=en">https://developers.google.com/privacy-sandbox/blog/office-hours-private-state-tokens?hl=en</a>)</p> <p>Register for the upcoming Private State Tokens Office Hours. Coming on th...</p> <p>Privacy Sandbox</p>
<p>Sam Dutton March 13, 2024</p>	<p>Alex Cone February 15, 2024</p>	<p>February 4, 2024</p>



## Join Privacy Sandbox Office Hours #12: Learn about Chrome- facilitated testing

(<https://developers.google.com/privacy-sandbox/blog/office-hours-12?hl=en>)

Join the 12th edition  
of Privacy Sandbox  
office hours  
dedicated to Chrom...

Privacy Sandbox

Milica Mihajlja  
January 29, 2024



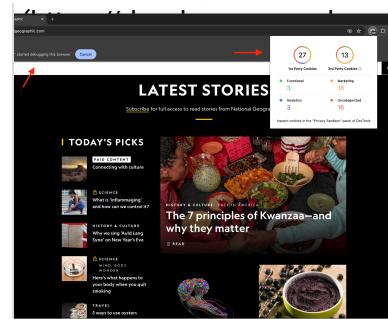
## Third-party cookie deprecation trial for top- level sites now available

(<https://developers.google.com/privacy-sandbox/blog/3pcd-first-party-deprecation-trial-available?hl=en>)

If your first-party site  
relies on third-party  
embedded services  
and third-party cooki...

Privacy Sandbox

Milica Mihajlja  
January 25, 2024



## Introducing the Privacy Sandbox Analysis Tool (PSAT)

(<https://developers.google.com/privacy-sandbox/blog/psat-announcement?hl=en>)

Announcing the  
Privacy Sandbox  
Analysis Tool, a  
DevTools extension...

Privacy Sandbox

Alberto Medina  
January 15, 2024

(<https://developers.google.com/privacy-sandbox/>)

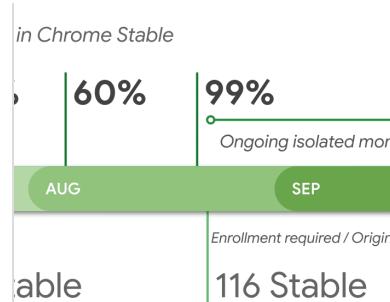


Third-party  
cookies  
restricted by  
default for 1%  
of Chrome  
users

(<https://developers.google.com/privacy-sandbox/blog/cookie-countdown-2024jan?hl=en>)

If your site uses third-party cookies it's time to take action as we approach their...

Privacy Sandbox



Shipping the  
Privacy  
Sandbox  
relevance and  
measurement  
APIs

(<https://developers.google.com/privacy-sandbox/blog/privacy-sandbox-launch?hl=en>)

Plans and timeline for gradually enabling the Privacy Sandbox relevance and...

Privacy Sandbox



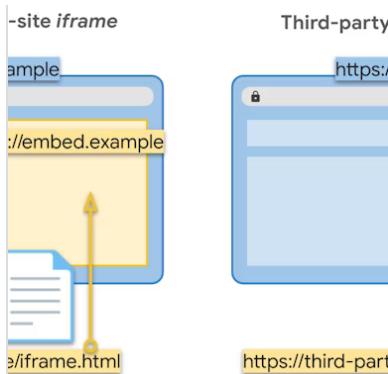
Participate in  
the origin trial  
for non-  
cookie  
storage  
access  
through the  
Storage  
Access API

(<https://developers.google.com/privacy-sandbox/blog/saa-non-cookie-storage?hl=en>)

Chrome is proposing the ability for third parties to request storage or...

JavaScript

Privacy Sandbox



## Request additional migration time with the third-party cookie deprecation trial

(<https://developers.google.com/privacy-sandbox/blog/third-party-cookie-deprecation-trial?hl=en>)

To facilitate testing, Chrome has restricted third-party cookies by default for 1% of...

JavaScript    HTML

Privacy Sandbox



## Preparing for the end of third-party cookies

(<https://developers.google.com/privacy-sandbox/blog/cookie-countdown-2023oct?hl=en>)

If your site uses third-party cookies, it's time to take action as we approach their...

Privacy Sandbox

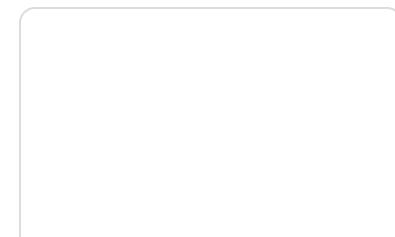
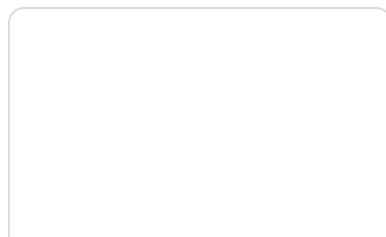


## Related Website Sets - the new name for First-Party Sets in Chrome 117

(<https://developers.google.com/privacy-sandbox/blog/related-website-sets?hl=en>)

Related Website Sets (RWS) is the new name for First-Party Sets. It also brings...

Privacy Sandbox



**Privacy Sandbox** developers

## Introducing Privacy Sandbox Demos

(<https://developers.google.com/privacy-sandbox/blog/privacy-sandbox-demos?hl=en>)

Privacy Sandbox Demos offer cookbook recipes, sample code, and...

Privacy Sandbox

**Privacy Sandbox** developers

## Enhancements to the Topics API

(<https://developers.google.com/privacy-sandbox/blog/topics-enhancements?hl=en>)

Updates to top topics selection, the Topics taxonomy and filtering mechanism...

Privacy Sandbox

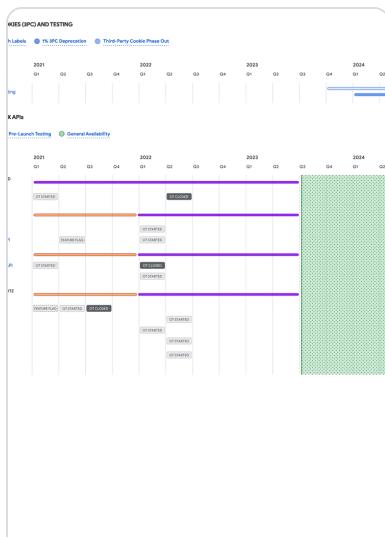
**Privacy Sandbox** developers

## Storage partitioning deprecation trial extended

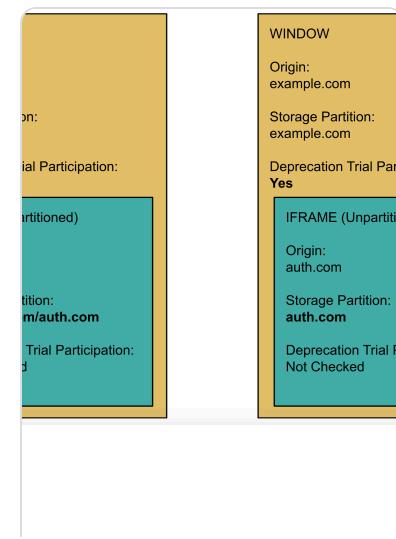
(<https://developers.google.com/privacy-sandbox/blog/storage-partitioning-deprecation-trial-extended?hl=en>)

Sites that haven't had time to adapt their sites for third-party storage partitioning...

Privacy Sandbox



**Privacy Sandbox** developers



## Preparing to ship the Privacy Sandbox relevance and measurement APIs

(<https://developers.google.com/privacy-sandbox/blog/shipping-privacy-sandbox?hl=en>)

General availability for these APIs begins in late July with Chrome Stable 115.

Privacy Sandbox

## Developer enrollment for the Privacy Sandbox

(<https://developers.google.com/privacy-sandbox/blog/announce-enrollment-privacy-sandbox?hl=en>)

A new process to new verify developer identity and gather configuration details...

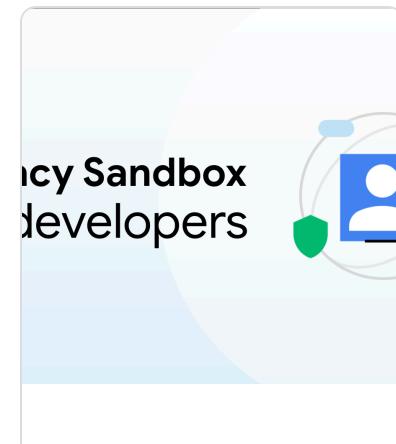
Privacy Sandbox

## Participate in deprecation trial for unpartitioned third-party storage, Service Workers, and Communication APIs

(<https://developers.google.com/privacy-sandbox/blog/storage-partitioning-deprecation-trial?hl=en>)

Beginning gradually in Chrome 115, storage, service workers, and communication API...

Privacy Sandbox



## Prepare for Chrome's user-agent reduction

(<https://developers.google.com/privacy-sandbox/blog/user-agent-reduction-android-model-and-version?hl=en>)

Starting in Chrome 110 (February 2023) we are gradually introducing a fixed...

JavaScript

Privacy Sandbox

Rowan Merewood

aQuoiuC3NgyvDnySwgj4/kCZyXSam0kWmmWL  
LYXR1cmUi0iJSZWR1Y2VBY2NlcHRMYW5ndWF  
ubDomains; preload  
ko ar)

## Participate in origin trial for Accept-

## FLEDGE Bidding and Auction services availability

(<https://developers.google.com/privacy-sandbox/blog/bidding-and-auction-services-availability?hl=en>)

These services will be available for testing in 2023, for Chrome and Android.

Privacy Sandbox

Priyanka Chatterjee

February 9, 2023

Joey Trotz

 <https://developers.google.com/privacy-sandbox/blog/first-party-sets-testing-instructions?hl=en>

## First-Party Sets testing instructions

## Maximize ad relevance

(<https://developers.google.com/privacy-sandbox/blog/maximize-ad-relevance?hl=en>)

Privacy Sandbox ad relevance without third-party cookies.

Privacy Sandbox

Privacy Sandbox for developers



Privacy Sandbox for the web:

## Language Reduction

(<https://developers.google.com/privacy-sandbox/blog/origin-trial-for-accept-language-reduction?hl=en>)

Accept-Language Reduction is an effort to reduce passive fingerprinting...

JavaScript

Privacy Sandbox

Victor Tan

December 1, 2022

(<https://developers.google.com/privacy-sandbox/blog/first-party-sets-testing-instructions?hl=en>)

First-Party Sets can allow related domain names that are owned and operated...

Privacy Sandbox

## Expanding testing into 2023

(<https://developers.google.com/privacy-sandbox/blog/expanding-privacy-sandbox-testing-2023?hl=en>)

Testing takes time. We're taking a deliberate approach to testing the Privac...

Privacy Sandbox

Joey Trotz

November 10, 2022

## Privacy Sandbox for developers

Increasing the Privacy Sandbox Relevance and Measurement



## No spooky cookies

(<https://developers.google.com/privacy-sandbox/blog/no-spooky-cookies?hl=en>)

## Privacy Sandbox for developers

Participate in early testing for Storage Partitioning

## origin trial to 5%

(<https://developers.google.com/privacy-sandbox/blog/privacy-sandbox-origin-trial-increase?hl=en>)

This week, no sooner than October 26, we'll begin increasing the Privacy Sandbox...

Privacy Sandbox

Christina Ilvento  
October 24, 2022

Cookies are best fresh, so what are the latest recipes to ensure you can still...

Privacy Sandbox

(<https://developers.google.com/privacy-sandbox/blog/storage-partitioning-dev-trial?hl=en>)

To improve privacy, Chrome is changing how storage and communication API...

Privacy Sandbox

Mike Taylor  
September 1, 2022

Privacy Sandbox for developers



Prepare for User-Agent Reduction changes in October

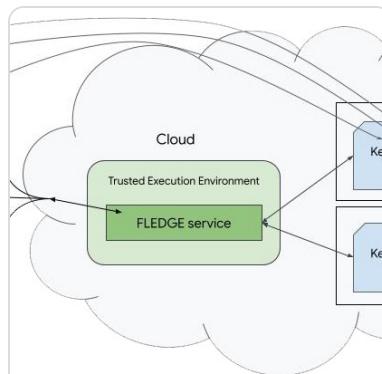
FLEDGE services for Chrome and Android

(<https://developers.google.com/privacy-sandbox/blog/fledge-service-overview?hl=en>)

Privacy Sandbox for developers



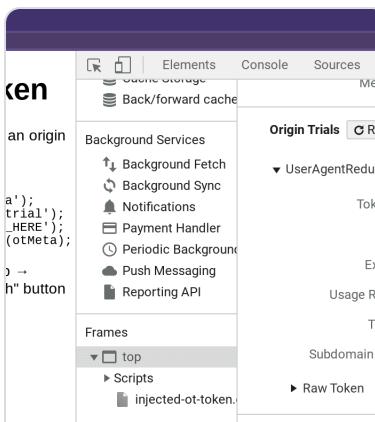
Open sourcing the FLEDGE Key/Value service

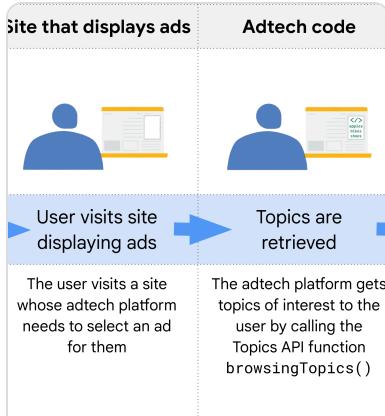


<p>(<a href="https://developers.google.com/privacy-sandbox/blog/user-agent-reduction-oct-2022-updates?hl=en">https://developers.google.com/privacy-sandbox/blog/user-agent-reduction-oct-2022-updates?hl=en</a>)</p> <p>In October, Chrome will take the next step in reducing the information available...</p> <p>Privacy Sandbox</p>	<p>FLEDGE is a Privacy Sandbox proposal to serve remarketing and custom audienc...</p> <p>Privacy Sandbox</p> <p>Alexandra White August 24, 2022</p>	<p>(<a href="https://developers.google.com/privacy-sandbox/blog/open-sourcing-fledge-key-value-service?hl=en">https://developers.google.com/privacy-sandbox/blog/open-sourcing-fledge-key-value-service?hl=en</a>)</p> <p>FLEDGE Key/Value service</p> <p>Privacy Sandbox</p> <p>Kevin K. Lee</p>
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<p></p> <p><b>Privacy Sandbox</b> Developers</p> <p><u><a href="#">Expanding Privacy Sandbox testing</a></u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/expanding-privacy-sandbox-testing?hl=en">https://developers.google.com/privacy-sandbox/blog/expanding-privacy-sandbox-testing?hl=en</a>)</p> <p>As the Privacy Sandbox timeline changes, learn about the expanding and...</p>	<p></p> <p><b>Privacy Sandbox</b> Developers</p> <p><u><a href="#">Progress in the Privacy Sandbox (May - June 2022)</a></u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2022-06?hl=en">https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2022-06?hl=en</a>)</p> <p>Updates including including an expanded Privacy Sandbox Relevance...</p>	<p></p> <p><b>Privacy Sandbox</b> Developers</p> <p><u><a href="#">Attribution Reporting updates in June 2022</a></u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/attribution-reporting-updates-june-2022?hl=en">https://developers.google.com/privacy-sandbox/blog/attribution-reporting-updates-june-2022?hl=en</a>)</p> <p>Review the latest changes to the Attribution Reporting API.</p>
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Privacy Sandbox	Privacy Sandbox	Privacy Sandbox
Rowan Merewood July 27, 2022	Rowan Merewood July 8, 2022	Alexandra White June 23, 2022
 <p>Privacy Sandbox developers</p> <p><u>Generate summary reports with the aggregation service</u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/generate-summary-reports?hl=en">https://developers.google.com/privacy-sandbox/blog/generate-summary-reports?hl=en</a>)</p> <p>Experiment and set up the aggregation service to generate Attribution Reportin...</p> <p>Privacy Sandbox</p>	 <p>Privacy Sandbox developers</p> <p><u>Cookies Having Independent State (CHIPS) origin trial extended</u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/chips-origin-trial-extended?hl=en">https://developers.google.com/privacy-sandbox/blog/chips-origin-trial-extended?hl=en</a>)</p> <p>CHIPS is a Privacy Sandbox proposal that introduces a mechanism to opt-in...</p> <p>Privacy Sandbox</p>	 <p>Privacy Sandbox developers</p> <p><u>Progress in the Privacy Sandbox (March - April 2022)</u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2022-04?hl=en">https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2022-04?hl=en</a>)</p> <p>Updates including including a number of APIs available for origin trial: CHIPS fo...</p> <p>Privacy Sandbox</p>
Alexandra White	Milica Mihajlja	Rowan Merewood

June 6, 2022	May 26, 2022	May 17, 2022
<p><b>Privacy Sandbox</b> developers</p>  <p><u>Join Privacy Sandbox developer office hours #1: learn about Chrome Origin Trials</u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/privacy-sandbox-office-hours-1?hl=en">https://developers.google.com/privacy-sandbox/blog/privacy-sandbox-office-hours-1?hl=en</a>)</p> <p>Join the Google Chrome team in our Privacy Sandbox office hours, where...</p> <p>Privacy Sandbox</p> <p>Mariah Hart April 18, 2022</p>	 <p><u>Test the Privacy Sandbox ads relevance and measurement APIs</u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/privacy-sandbox-unified-origin-trial?hl=en">https://developers.google.com/privacy-sandbox/blog/privacy-sandbox-unified-origin-trial?hl=en</a>)</p> <p>Learn about developer testing and the upcoming origin trial allowing for...</p> <p>JavaScript Privacy Sandbox</p> <p>Rowan Merewood March 31, 2022</p>	 <p><u>Cookies Having Independent Partitioned State (CHIPS) origin trial</u></p> <p>(<a href="https://developers.google.com/privacy-sandbox/blog/chips-origin-trial?hl=en">https://developers.google.com/privacy-sandbox/blog/chips-origin-trial?hl=en</a>)</p> <p>Starting in Chrome 100, CHIPS origin trial allows opting cookies in to "partitioned"...</p> <p>JavaScript Privacy Sandbox</p> <p>Milica Mihajlja March 17, 2022</p>



## Progress in the Privacy Sandbox (January/February 2022)

(<https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2022-02?hl=en>)

Updates including Privacy Sandbox on Android, CHIPS origin trial, user-agent...

Privacy Sandbox

Rowan Merewood  
March 4, 2022

kjKd7B9t1CDTqEJ34CIVxmIVano0LZXAhQWZ0ZXJSZWR1Y3Rpb24iLCJleHBpcnki0jns; preload

## User-Agent Reduction deprecation trial

(<https://developers.google.com/privacy-sandbox/blog/user-agent-reduction-deprecation-trial?hl=en>)

Starting from Chrome 101, the information available in the User-Agent string will be...

Privacy Sandbox

<https://developers.google.com/privacy-sandbox/blog/fledge-api?hl=en>

(<https://developers.google.com/privacy-sandbox/blog/fledge-api?hl=en>)

## FLEDGE API developer guide

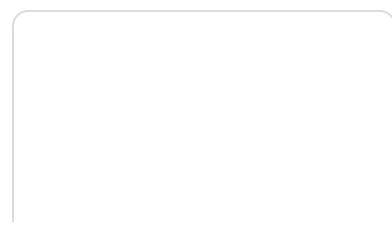
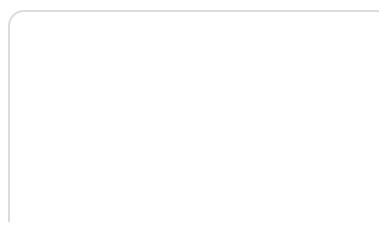
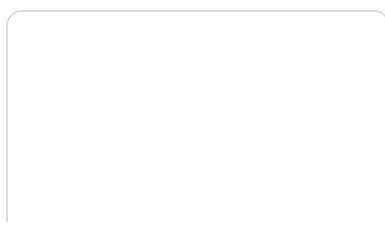
(<https://developers.google.com/privacy-sandbox/blog/fledge-api?hl=en>)

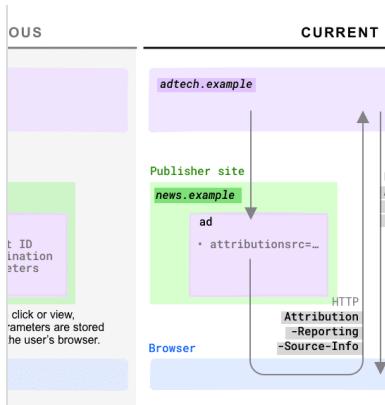
Protected Audience API is a Privacy Sandbox proposal to serve remarketing...

JavaScript    HTML

Privacy Sandbox

Sam Dutton  
January 27, 2022





## Attribution Reporting proposal updates in January 2022

(<https://developers.google.com/privacy-sandbox/blog/attribution-reporting-jan-2022-updates?hl=en>)

Learn about changes made to Attribution Reporting to reflect community feedback.

Privacy Sandbox



## Progress in the Privacy Sandbox (December 2021)

(<https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2021-12?hl=en>)

Looking back at stats from 2021 and some resolutions for tackling user-agent...

HTML

Privacy Sandbox

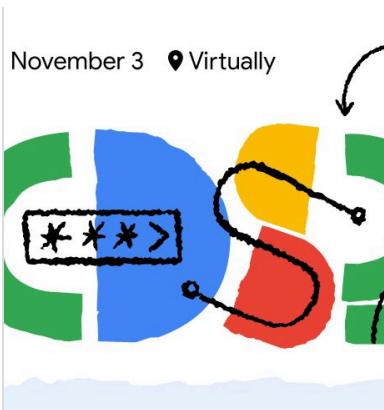


## Progress in the Privacy Sandbox (November 2021)

(<https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2021-11?hl=en>)

Monthly summary of Privacy Sandbox news including a CDS recap and User-Age...

Privacy Sandbox



## Progress in the Privacy Sandbox (October 2021)

(<https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2021-10?hl=en>)

Monthly summary of Privacy Sandbox news including the

(<https://developers.google.com/privacy-sandbox/blog/user-agent-reduction-origin-trial?hl=en>)

## Progress in the Privacy Sandbox (September 2021)

(<https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2021-09?hl=en>)

Monthly summary of Privacy Sandbox news including the

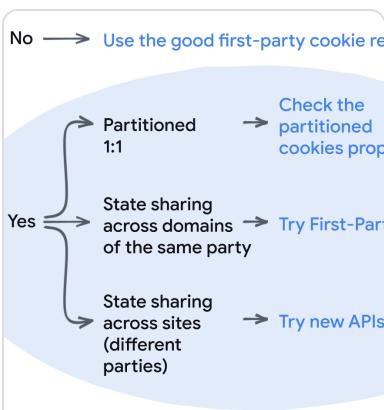
(<https://developers.google.com/privacy-sandbox/blog/user-agent-reduction-origin-trial?hl=en>)

## User-Agent Reduction origin trial

(<https://developers.google.com/privacy-sandbox/blog/user-agent-reduction-origin-trial?hl=en>)

Starting in Chrome 95 Beta, an origin trial allowed sites to opt into receiving the...

Privacy Sandbox



## Progress in the Privacy

(<https://developers.google.com/privacy-sandbox/blog/first-party-sets-sameparty?hl=en>)

## [OUTDATED] First-Party Sets and the

(<https://developers.google.com/privacy-sandbox/blog/first-party-sets-sameparty?hl=en>)

## How to take part in the

## Sandbox

### (August 2021)

(<https://developers.google.com/privacy-sandbox/blog/progress-in-the-privacy-sandbox-2021-08?hl=en>)

First in the series of monthly summaries for changes across the Privacy Sandbox...

Privacy Sandbox

Rowan Merewood

August 30, 2021

## SameParty attribute

(<https://developers.google.com/privacy-sandbox/blog/first-party-sets-sameparty?hl=en>)

First-Party Sets can allow related domain names that are owned and operated...

Privacy Sandbox



Privacy Sandbox  
developers

How to participate in the Privacy Sandbox initiative

## FLoC origin trial

(<https://developers.google.com/privacy-sandbox/blog/floc?hl=en>)

Federated Learning of Cohorts (FLoC) provides a privacy preserving...

JavaScript

Privacy Sandbox

Sam Dutton

March 30, 2021

Privacy Sandbox  
developers



Progress update on the Privacy Sandbox initiative

(<https://developers.google.com/privacy-sandbox/blog/privacy-sandbox-participate?hl=en>)

The Privacy Sandbox proposes a set of privacy-preserving APIs to support...

Privacy Sandbox

Justin Schuh

(<https://developers.google.com/privacy-sandbox/blog/privacy-sandbox-update-2021-jan?hl=en>)

The Privacy Sandbox proposes a set of privacy-preserving APIs to support...

Privacy Sandbox

Justin Schuh

^ Less